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The purpose of the project was to develop a polysensory multi-media programed instruction presentation which could teach non-college-bound youth competencies necessary for entry level employment in the general merchandise retail field. Instructional systems concepts were used in preparing for field testing nine sub-systems of instruction in retailing. Sub-systems were: (1) Salesperson's Job, (2) Qualities of a Salesperson, (3) Customers' Buying Motives, (4) Selling Process, (5) Merchandise Information, (6) Cash Register Operation, (7) Stockkeeping Task, (8) Retail Recordkeeping, and (9) Working with People. Prototype components which include 23 booklets of programed instruction and eight audiscan sound slidefilms have been developed for the instructional sub-systems of Cash Register Operation, Stockkeeping Task, Retail Record Keeping, and Working with People. These materials are ready for field testing by the Northwest Regional Education Laboratories during the fall semester of 1968. (MM)

FINAL REPORT
Project No. 7-0031
Contract No. OEG-4-7-070031-1626
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DEVELOPMENT OF A RETAILING INSTRUCTIONAL SYSTEM FOR DISTRIBUTIVE EDUCATION

August 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

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by

Kenneth A. Ertel

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The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

University of Idaho, Department of Education
Washington State University, Department of Education
Idaho State Board for Vocational Education
Washington State Coordinating Council for Occupational Education

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Objectives

This distributive education instructional systems development project was to create materials which could teach non-college-bound youth the competencies necessary for entry level employment in the general merchandise retail field. Further, it was to find ways to:

- increase the efficiency and effectiveness of high school distributive education instruction
- make distributive education curriculum materials and instruction available in schools where it is not now feasible to teach the subjects
- allow for more individualized instruction
- provide more youth with an opportunity for occupational education in distribution
- provide an integrated multiple strategy approach to presentation of subject matter
- provide continuous evaluation and feedback of results of student performance.

Instructional systems concepts were utilized in preparing for field testing nine-sub-systems of instruction in retailing. The sub-systems are:

I. Salesperson's Job
II. Qualities of a Salesperson
III. Customers' Buying Motives
IV. Selling Process
V. Merchandise Information
VI. Cash Register Operation
VII. Stockkeeping Task
VIII. Retail Recordkeeping
IX. Working With People

Procedure

Objectives, derived from three recent distributive education research projects supported by the U. S. Office of Education, were stated in behavioral terms. Instructional content designed to teach the behaviors described was developed in an individualized instruction mode. Linear style programmed instruction in written form is used as the primary instructional vehicle. A polysensory multi-media programmed instruction presentation was achieved by integrating concepts in written, audio, and visual styles. The Audiscan Model A cartridge-type sound-slide film projector is used for controlling presentation of subject matter and student response with little student manipulation of the equipment.

Results

Prototype components of an instructional system have been developed and are ready for field testing. Key elements included which were developed by the project staff are 23 booklets of programmed instruction and eight Audiscan sound slide films. These materials are ready for field testing by the Northwest Regional Education Laboratories during the fall semester 1968.

INTRODUCTION

PURPOSE AND RATIONALE

This project was undertaken to design, for non-college-bound youth, distributive education curricula which are consistent with current and near future occupational requirements. These distribution occupations constitute the second largest and fastest growing field of employment. Current developments in distribution are resulting in increasingly rapid changes in occupational opportunities and requirements. Each year increasingly larger percentages and existing occupational competencies become obsolete. Employment and promotion require capabilities with changing job patterns and requirements.

The philosophic premise of this instructional systems development project is that occupational freedom involves both informed choice of alternatives and competence to work effectively. The economy needs constantly larger numbers of workers possessing new capabilities. But youth can evaluate only those occupational choices that they perceive. They are free to perform only the kinds of work for which they acquire competence. These instructional systems are designed to assist non-college-bound youth with exploration of job entry requirements in retailing and with acquisition of entry capabilities.

Occupational choice and acquisition of competence may be needlessly impaired by limited outlooks and motivations. For these reasons studies of occupational perceptions and aspirations related to this curriculum development project have been analyzed. Concepts of occupational aspirations derived from those studies are incorporated into the systems content.

Numerous studies indicate that certain kinds of learning are facilitated when several senses are involved in the learning process. This project is intended to further test the potential of a ploysensory system to enlarge the performance capabilities of pupils. The system developed for this project is designed to utilize several senses by varied combinations of educational media. This system is designed to help:

- provide increased teacher time for individual instruction
- more fully utilize various media for giving pupils access to information.
- adjust for individual differences in rate of learning and assimilation of information

- enlarge the self-instructional dimensions and means of facilitating continuous student progress

- reinforce manipulative information by providing for student participation in laboratory or work experience.

- provide instructional content in retailing for schools where current distributive education curricula and personnel are inadequate to meet the needs of young adults

- provide materials that support the instruction in preparatory distributive education programs.

BACKGROUND

The development of this instructional system is one phase of a project designed to identify clusters of concepts and capabilities common to a wide range of vocations and to provide new approaches to teaching those competencies. Other occupational families studied include building trades, offices, electronics, food services, child care, and agriculture.

A major purpose of the total project was to identify clusters of concepts and competencies most likely to maximize the career-long occupational opportunity, competence, and choice of non-college-bound youth in an evolving technological society. The studies were designed to provide data on (a) combinations of tasks generally performed by workers with various degrees of experience, and (b) motivational factors affecting occupational choices and willingness to pursue the necessary training.

Results of those studies are reported in the following reports of Project No. 7-0031:

- Walter Slocum and Roy Bowles, "Educational and Occupational Aspirations and Expectations of High School Juniors and Seniors in the State of Washington with Special Reference to Those Not Planning to Obtain a College Degree."

- Walter Slocum and Roy Bowles, "Educational and Occupational Aspirations and Expectations of High School Juniors and Seniors In the State of Washington with Special Reference to Those Not Planning to Obtain a College Degree," (Supplement).

- LeRoy Olsen, "Development and Standardization of a Projective Occupational Attitude Test."

- Harold Heiner, "A Forced Choice Procedure for Measurement of Pupils' Attitudes Toward Major Dimensions of Work."

- Boyd Mills, "Major Task and Knowledge Clusters Involved in Performance of Electronic Technicians' Work."

. Edward Perkins and Ross Byrd, "A Research Model for Identification of Task and Knowledge Clusters Associated with Performance of Major Types of Office Employees' Work."

. Kenneth Ertel, "Identification of Major Tasks Performed by Merchandising Employees Working in Three Standard Industrial Classifications of Retail Establishments."

. William Bakamis, "Identification of Task and Knowledge Clusters Associated with Performance of Major Types of Building Trades' Work."

. Harold Rahmlow, "Mathematics Clusters in Selected Areas of Vocational Education."

. Harold Rahmlow, "A Survey Instrument for Identifying Clusters of Knowledges and Competencies Associated with Performance of Food Service Work."

. Harold Rahmlow and Shirley Kiehn, "A Survey Instrument for Identifying Clusters of Knowledges and Competencies Associated with Performance of Child Care Work."

. Gilbert Long, Joel Magisos, and Stanley Sleeth, "Transparency Masters to Agricultural Education."

. Gilbert Long, "Animal Nutrition, A Programmed Instruction Unit."

. Gilbert Long, "Land Judging and Plant Nutrition, A Programmed Instruction Unit."

. Edward Perkins and Ross Byrd, "Clusters of Tasks Associated with Performance of Major Types of Office Work."

. Shirley Kiehn, "A Survey and Analysis of Major Tasks Knowledges Associated with Work in Child Care Occupations."

. Harold Rahmlow, "A Series of Programmed Instruction Books for Learning Occupationally-Oriented Basic Mathematics."

. Roy Bowles and Walter Slocum, "Social Characteristics of High School Students Planning to Pursue Post-High School Vocational Training."

. Dale Nish, "The Development and Testing of a Polysensory Instructional System for Teaching Knowledges and Skills Associated with the Use of Expandable Polystyrene Plastics."

. Edward Hill, "The Development and Testing of an Experimental Polysensory Self-Instructional System Designed to Help Students Acquire Basic Electrical Occupational Competencies."

. Kenneth Ertel, "Clusters of Tasks Performed by Merchandising Employees Working in Three Standard Industrial Classifications of Retail Establishments."

- LeRoy Olsen and William Venema, "Development of a Projective Technique for Obtaining Educationally Useful Information Indicating Pupils' Attitudes Toward Work and Occupational Plans."

- Jerry Levendowski, "Audio-Visual Instructional Materials for Distributive Education."

- Toshio Akamine, "Development of an Experimental Forced-Choice Occupational Preference Inventory."

- Gilbert Long, "Clusters of Tasks Performed by Washington State Farm Operators Engaged in Seven Types of Agricultural Production: Grain, Dairy, Forestry, Livestock, Poultry, Horticulture, General Farming."

The purpose of the second phase of Project No. 7-0031 is to design curricular materials which will help pupils acquire capabilites identified as widely useful by the above studies. The instructional systems approach is used to teach those capabilities previously identified in a primarily individualized mode. This approach has potential to allow immediate incorporation of the instructional content into a school system without requiring extensive revision of curriculum or scheduling.

The Project staff developed instructional systems in welding, plastics, electricity, electronics, vocational mathematics, and communications which are being field tested by the Northwest Regional Education Laboratory.

REVIEW OF RELEVANT LITERATURE

Research reports and literature relevant to this project have been reviewed in Project OE 7-0031, Reports Nos. 18 and 19. For that reason, this report simply contains a bibliography of those items with particular relevance to the distributive education instructional systems. For details and annotations on the items listed, see the reports by:

Nish, Dale LeRoy. "The Development and Testing of a Polysensory Instructional System for Teaching Knowledges and Skills Associated with the Use of Expandable Polystyrene Plastics," Report No. 18, USOE Project No. OE 7-0031, Pullman, Washington: Washington State University, 1968.

Hill, Edwin K. "The Development and Testing of an Experimental Polysensory Self-Instructional System Designed to Help Students Aquire Basic Electrical Occupational Competencies," Report No. 19, USOE Project No. OE 7-0031, Pullman, Washington: Washington State University, 1968.

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INSTRUCTIONAL SYSTEMS CONCEPTS

The basic concepts of instructional systems, the rationale and design undergirding this project were developed by Dr. Herbert Hite.[1] Modified slightly to meet the realities of the project environment, those concepts have provided focus to the development of the complete series of instructional systems created within the vocational-technical education project. Those basic concepts follow:

INSTRUCTIONAL SYSTEMS DEFINED

An instructional system is a sequence of learning experience through which each learner within a defined population moves at his own pace in order to demonstrate certain behavior which will meet defined criteria.

Instructional systems are focused on the responses that learners make as well as acts the teacher performs. They are based upon the way in which one student at a time learns a specific new behavior rather than upon the way in which a teacher guides a group of learners.

Systems utilize both men and machines. Because the system usually allows each pupil to work at his own pace, the components are typically self-instructional devices and individual teaching techniques. Examples of such components are tutorial sessions, discussions, single-concept films and programmed materials.

A system may be a means of acquiring either simple or complex behaviors. A system can be designed so that each learner correctly types 50 words a minute, or it can lead the pupil to the solution of a complicated problem in research design.

The system is a practical approach to learning, and the systems designer uses whatever learning or communication principles seem best suited to helping certain pupils acquire specific behaviors.

SOME BASIC CHARACTERISTICS OF INSTRUCTIONAL SYSTEMS

The first step in the design of the system is the selection and statement of behavioral objectives.

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[1] Herbert Hite, "Instructional Systems Concepts," mimeographed report, Pullman, Washington: Washington State University, 1966.

Objectives for Systems

Objectives are stated in terms of the behavior which the learner will acquire. Precise statements of behavioral objectives are characteristic both of the broad terminal goals of an instructional system and of the more specific objectives which characterize the stages within the system.

Instructional objectives for systems are like objectives for evaluation instruments or for programmed instruction. Unless the objectives can be defined in terms of the behavior the learner will demonstrate, an instructional system cannot be designed. The behavioral statements which constitute objectives for the system are unlike the rather general and unspecific statements of goals which characterize the vast majority of courses of study and curriculum guides.

Statement of Objectives

The systems designer begins with a statement of the ultimate behavior which the learner will demonstrate and then proceeds to descriptions of behavior which characterize the learner's progress at each step in achieving this ultimate behavior.

An assumption about learners

Instructional systems assume that it is possible to define a population, all of whom can meet the objectives of an instructional system. Major differences among this population can be anticipated and provided for by alternative components within the system. The major differences in instruction required by different individuals will be variations in the amounts of time each needs to reach the objectives of the system.

Once objectives have been stated, the systems designer finds that he has described by implication the nature of the population who will be his learners. Specific descriptions of the learner population sets limits within which the system will operate. It may be important for the systems designer to define subpopulations who possess special characteristics and might, therefore, have particular objectives.

Learner responses

Responses are designed to occur frequently in the system in such a fashion that they can be observed and evaluated. These overt responses are essential in order that the system can be adapted to the capabilities and rates of progress of each individual. Unlike typical teaching plans, learners in a system are individually responsible for demonstrating that they are, in fact, learning at each stage of the system. These overt and frequent responses of

learners furnish a basis for diagnosing learner difficulties and additional instructional needs.

A systems design permits responses which represent large steps as well as small ones in the attainment of the ultimate objectives. Such large steps might be a performance of a new skill, a discussion with a tutor, viewing of an entire motion picture, or other such gross instructional strategies. This feature of the system is unlike a typical verbal programmed text. The systems designer anticipates and describes the learner responses which characterize acceptable achievement of the objectives which he has already stated.

Systems Components

Components consist of instructional devices and strategies each of which performs an essential function in the system not performed by any other component. A component may be a self-instructional device e.g. (a single-concept film or programmed learning materials) or a human teacher. A particular component is selected because of its peculiar qualities and because of the function it is to serve in the system.

Systems design strategy. After describing the learners' responses as related to the specific objectives, the systems designer selects the instructional devices which in his judgment will best elicit these desired responses. It is essential for the systems designer to possess a knowledge of the particular contributions to learning that can best be made by different types of instructional devices. The components of a system represent links in a chain rather than alternative resources which a teacher may use or not at his discretion. Components in the system provide the learner with directions or models for his behavior, they provide information, and they inform him about his progress.

Personnel. Professional personnel are utilized to carry out roles which are necessary to the function of the system. Such roles might include those of monitor, tutor, systems designer, technician, specialist in materials, or evaluator. Such personnel need not be subject matter authorities. Thus, a particular professional person, such as a teacher, is an essential element of systems design because of the particular role required in the system and not because of his title.

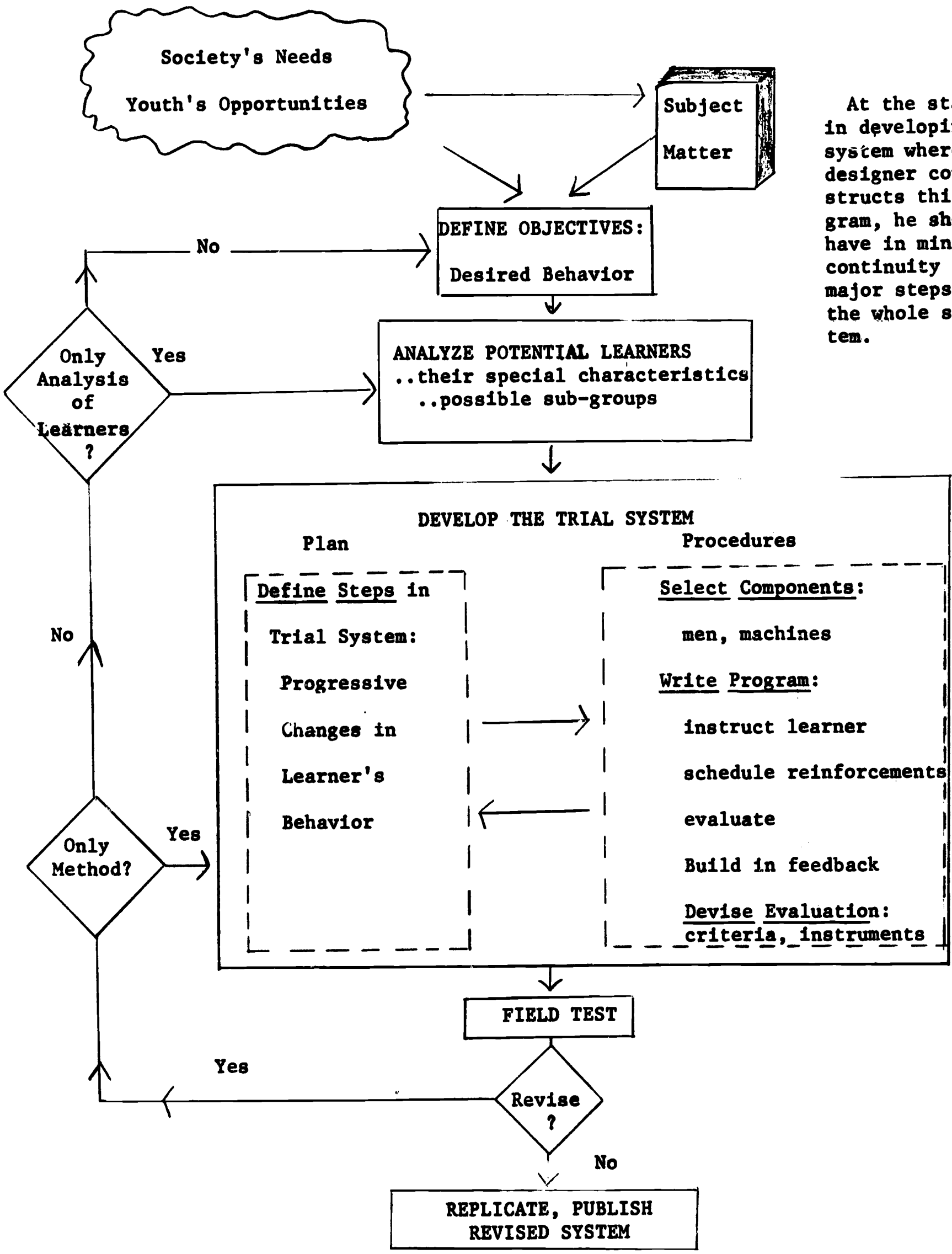
In a system instructional personnel constitute a special kind of component. The man in the man-machine system is present to perform a specific, clearly defined act which will assist a learner to demonstrate a particular achievement. The systems designer carefully describes the qualifications and roles of the human components in his system as part of the process of developing instructional strategies for eliciting appropriate learner responses.

Environment. The nature of the environment of an instructional system is characterized by great flexibility of time schedules, learning spaces, and instructional resources. Because the system is designed to be adaptive to individual learners, the environment in which it operates must provide for the diversity of space and resource requirements of learners working as individuals or in small groups.

The learning environment for a system may include other learners. If a particular objective seems best served by interaction among learners, then this arrangement of human elements in the environment is a part of the design. Many times, of course, the designer will specify arrangements which will facilitate independent study. Whether the learner will participate in a group or work independently, the design at all times focuses on each learner demonstrating progress independently.

The program. A program serves as a link between components and as a guide to the learner as he proceeds through the entire system. A typical program may take the form of a single-concept film, a tape recording, a set of printed instructions or laboratory manual.

Figure 1 SYSTEMS DESIGN PROCESS



At the stage in developing the system where the designer constructs this program, he should have in mind the continuity and major steps of the whole system.

Program communication. The program the designer writes at this stage is a means of communicating his own understanding of this learning process to the individual learner. The program he writes must tell the learner what to do at each point and also provide means for the learner to judge his own progress as he moves through the system. A special feature of the program may be arrangements for alternative sequences for learners who possess special characteristics or encounter specific difficulties.

Feedback. Feedback occurs at built-in points within the system. These responses of the learner inform the designer and the user about how well the system is working. A characteristic of systems is that they are capable of being modified to meet individual learner requirements while the system is being utilized.

Feedback is a kind of progress report from the learner to the systems designer. Having developed the objectives, stated the desired learner responses, selected appropriate components, and written a program, the designer must determine the critical points within the system where he must receive this feedback. The feedback may be a test of achievement or the demonstration of a performance. Typically, it would consist of a recorded performance by the learner which the designer or user can evaluate.

Evaluation

Evaluation of the output of the system consists of judgments as to whether or not observed responses of learners meet the criteria which were set up in the original objectives. The assumption is that the one inflexible characteristic of a system is that all learners within stated limits will achieve the objectives of the system.

The completed system must be administered to a pilot study group. This trial group need not be large but it should be characteristic of the population which will ultimately use the system. Close evaluation and observations of this pilot test are imperative. It will be especially important for the systems designer to examine learner responses at all stages of the system.

Evaluation involves testing and redesigning the original system plan. Each system is based upon a pragmatic rationale -- a system is actually not a system until it works. Thus, every system must be redesigned on the basis of actual test experience.

Revision

The final stage in the systems design is the revision of the original plan based upon the results of the pilot study.

PROCEDURE FOR RETAILING INSTRUCTIONAL SYSTEM DEVELOPMENT

Distribution is currently the second largest and fastest growing occupational field in America. The general merchandise retail field is the largest employment category within distribution. Data from placement records of graduates of high school cooperative distributive education students indicate the general merchandise retail field is the number one ranked job placement. Further, work in the general merchandise retail category of stores is the number one ranked occupational objective of distributive education students. Retailing is an employment field most likely to provide substantial occupational opportunity to non-college-bound youth.

Need for Distributive Instructional Systems

Analyses of trends in major types of retailing work indicate substantial need for educational programs that provide pupils with modernized concepts of retailing work. Current research has shown types of tasks performed by employee level personnel thus identifying competencies needed to perform at the job entry level. Other studies show that at present few high schools provide instruction adequate to prepare pupils for work in retailing occuations.

There is need for instructional materials that will broaden and modernize existing programs and provide other schools with means of initiating programs.

Purposes

The purposes of this phase of the project are development, testing, and evaluation of instructional systems in distributive education. These systems will embody clusters of concepts and knowledges derived from present studies within this project and from related research of what employees in leading-edge retail establishments need to know to perform major types of tasks. Combined with the mathematics and communication instructional systems, these units will be aimed at increasing efficiency of instruction in major distributive occupational areas. Content of these systems will reflect innovations and trends in modern retailing.

Specific purposes of the project are to:

- provide for more effective and efficient instruction in competencies essential for employment in the general merchandise retail field
- allow for more individualized instruction
- provide more flexibility in instructional programming
- provide more youth with an opportunity for occupational education in distribution
- provide an integrated multiple strategy approach to presentation of subject matter
- provide continuous evaluation and feedback of results of student performance.

Systems Concepts

A distributive education instructional system is programmed instruction in its broadest sense. A program frame can be a single concept film, a series of slides with accompanying audio presentation, or a piece of information in written form in a controlled presentation with immediate student performance and knowledge of correctness of results.

The following principles of instructional systems development were basic to design of the sub-systems.

- All the parts were conceived and built to fit together and function as a total organized whole.
- Each element is designed to integrate its functions with other parts of the system in accomplishment of the systems purpose.
- Both kinds of components -- men and machines -- are planned from the very outset with specific reference to the systems goals and to unique capabilities and strength of each.
- The system applies what research has shown about effective teaching practices and learning processes.
- The instructional systems approach combines both human resources and machine technology to provide optimum conditions for efficient and effective learning.

Each system is designed to produce specific behavioral outcomes (cognitive, affective, and psycho-motor). Each is devised to utilize combinations of instructional materials and processes that jointly

contribute to specified outcomes. We conceive these systems as means of helping both large and small school systems utilize the time and talent of instructional teams.

Figure 2 is a schematic representation of the present retailing instructional system. The nine sub-systems are designed to develop competencies in the major task of selling, in key sales supporting activities and in interpersonal relations essential to working with people. The nine sub-systems are described in detail in Chapter V of this report.

FIGURE 2 Retailing Instructional System for Distributive Education

Stage I Retail Task Analysis

Performance Objectives

Stage II Create Instructional Systems

I. Salesperson's Job

II. Qualities of Salesperson

III. Customers' Buying Motives

IV. Selling Process

A. The Approach
B. Determining Customer Wants and Needs
C. Presenting Merchandise
D. Handling Customer Complaints
E. Suggestion Selling

V. Merchandise Information

VI. Cash Register Operation

A. Introduction
B. Preparing The Cash Register
C. Cash Register Operation
D. Making Change
E. Accepting Checks
F. Protecting Your Store
G. Clearing Cash Register
H. Criterion Test

VII. Stockkeeping

A. Merchandise Classified
B. Basic Principles
C. Relation To Other Functions

VIII. Retail Records

A. Introduction
B. Customer's Account
C. Sales Slip
D. Cash Sales
E. Merchandise Records
F. Price Marking

IX. Working With People

A. Your Attitude
B. You Are A Personality
C. Understanding You
D. Understanding Others
E. Communicating With Others

Stage III Field Test

Field Test

----------Revise

Retail Salesperson

Behavioral Objectives

Behavioral objectives were derived primarily from Ertel's [1] study of tasks performed by retail personnel. Two other major sources of data used in the objectives deriving process were by Lucy B. Crawford[2] and Charles E. Peck.

Statements of objectives were written in a mode generally accepted as adequate for development of programmed instruction. Each objective contains, either directly stated or implied, statements of expected student performance, statements of conditions under which the performance must take place and statements of the extent or degree of performance required. Objectives are listed in Chapter V as part of the description of each sub-system.

Systems Components

Typical systems will include three or more of the following elements:

- programmed learning materials
- individualized study materials
- pictures and/or printed instructions for projects and related activities
- recordings
- printed visuals -- drawings, charts
- visuals for projection
- single-concept films
- reading materials
- models and mock-ups
- work experience

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[1]Kenneth A. Ertel, "Identification of Tasks Performed by Retail Employees in Three Standard Industrial Classifications of Retail Establishments," Progress Report, Project No. ERD 257 - 65, Moscow, Idaho: University of Idaho, December 1966.

[2]Lucy C. Crawford, "A Competency Pattern Approach to Curriculum Construction in Distributive Teacher Education," Volumes I, II, and III, Blacksburg, Virginia: Virginia Polytechnic Institute, December 31, 1967.

Polysensory Self-Instructional Systems. Polysensory systems mean that students use a varied, yet coordinated, combination of educational media, which involves as many senses as is feasible in reaching specified outcomes in the learning process. These learning experiences are designed to function relatively independently of the instructor. In order to be self-instructional, the systems make maximum allowance for individual differences among students.

To meet the realities of environmental conditions imposed on the project staff as well as to plan for field testing in the Northwest Regional Educational Laboratory pilot school project, the three basic modes of presentation used in the sub-systems are audio tapes, film strip presentations, and programmed instruction.

Programmed Instruction

The primary instructional vehicle in each sub-system is linear style programmed instruction. Each concept or competency described by the performance objective is taught through the linear program mode. Where students are not able to pass the performance tests within the linear program, the student is directed to alternative instructional components in a branching style. Having completed the alternative learning process, the student is directed back into the main line of the program. These alternatives most commonly include a teacher-pupil interaction, a field trip, a textual assignment, a single concept film, a sound-slide presentation, or a different form of programmed instruction. All components in the alternative paths, however, are selected to enhance the probability of learning specifically defined behaviors.

The primary linear program contains concepts which are programmed in the form of sound-slide presentations.

The Audiscan Projector

Whenever feasible, sound and slide presentations are incorporated in the Audiscan Model A Sound Filmstrip Cartridge Projector. The Audiscan Model A is used to control the presentation of the sound and visuals. By programming automatic stops and restarts, it is possible to require students to respond overtly or correctly to questions or performance criterion, thus making the Audiscan an excellent control device for linear style programmed learning. The Audiscan incorporates audio tapes and 16mm slide presentations in a 5 x 5 x 1.5-inch cartridge. The cartridges, along with other system components, are easily catalogued in libraries or instructional materials centers where they are handy for individualized learning.

The Audiscan projector has been modified by the manufacturers at the suggestion of the project staff to simplify the student's control responsibility. The student performs only three actions on the equipment.

He places the cartridge in the slot (it can go only one way); he turns on the OFF-ON switch; and when directed by written instructions in self-checks or performance tests, he presses the re-start button. Any other stops or starts within the presentation are automatically controlled by the Audiscan mechanism. The Audiscan Model A projector is selected for maximum program control with minimum student manipulation of external controls.

The Retailing Sub-Systems

The nine sub-systems within this retailing instructional system are:

I. Salesperson's Job
II. Qualities of a Salesperson
III. Customers' Buying Motives
IV. Selling Process
V. Merchandise Information
VI. Cash Register Operation
VII. Stockkeeping
VIII. Retail Records
IX. Working With People

They are described in schematic form in Figure 2, page 21.

Components within the sub-systems have been organized in small booklets or short sound-slide presentations.

The small units are suggested by existing research on learning in order to more fully take advantage of motivational factors in learning, and to adjust to an optimum attention span in young adults. These small units also allow several students to be working at the same time in an individualized learning environment on one of the sub-systems.

The small booklets of programmed instruction, short Audiscan cartridges, and small unit alternative components allow greater flexibility. They also allow for minor correction after field tests without requiring complete revision of the total system to correct faults. Further, this organization makes it easier to integrate this material into a highly structured school environment.

The Teacher's Role

The teacher's major roles in the instructional system are to prepare pupils for the instruction, to encourage progress through individualizing instruction, and to evaluate performance.

To do this the teacher acts as a decision maker and a coordinator in the learning process. She prepares students with prerequisite knowledges for entering the "System," including techniques for learning from an instructional system. She completes evaluations, makes

decisions on pupils' readiness to proceed, and helps students start work in the program at appropriate points. The teacher encourages student progress by determining when alternative learning activities are required. At times she serves as a component of the system to present subject matter or to interact with students on concepts derived from the system. She does not, normally, act in the traditional teacher role as the primary source of knowledge about the subject.

School Environment

This retailing instructional system is planned to serve several purposes: (1) It may be used as an individualized instructional package to supplement classroom instruction in preparatory or cooperative part-time distributive education programs. (2) It can serve as the major content of an instructional program to prepare young adults for threshold level jobs in retailing in school systems where no retailing instruction is presently available. (3) It can be used to integrate instruction in retailing into other occupational education programs. (4) It can make individualized instruction available as preparation for retailing jobs.

The instructional systems were designed for convenient use in (1) high school instructional materials centers, (2) library carrels, (3) classroom carrels, (4) homes as individualized assignments, (5) small semi-isolated rural schools, (6) job corps centers, and (7) neighborhood youth corps centers.

Field Testing

Plans have been made to field test the materials during the fall semester 1968 in pilot schools under the supervision of the Northwest Regional Educational Laboratories, and in other selected high schools in the Pacific Northwest.

RESULTS: RETAILING SUB-SYSTEMS READY FOR FIELD TESTING

Research on the tasks performed by employee level personnel in the general merchandise retail field was used to derive behavioral, objectives which describe the competencies necessary for performance of those tasks. Instructional content designed to teach the behaviors described was developed in the form of instructional sub-systems. Programmed instruction content in written and in sound slide film form has been produced as the primary content of the sub-systems. When combined in a directed sequence with other prescribed components of the sub-system, these materials should prepare young adults for entry jobs in the general merchandise retail field.

The major components of these sub-systems are 23 booklets of linear style programmed instruction and 9 Audiscan cartridges of sound slide film.

Sub-systems ready for field testing are:

Cash Register Operation

The Selling Process

The Stockkeeping Task

Retail Recordkeeping

Working With People

CASH REGISTER OPERATION

The purpose of this sub-system is to develop and test the effectiveness of a polysensory self-instructional system designed to help high school students acquire those skills related to the tasks involved in cash register operation.

Present educational needs studied in the preparation of this sub-system indicate that today we must provide the following three opportunities in order to make the students' education more effective:

- enable instructors to provide quality instruction for larger numbers of pupils

- provide a wider variety of subject-matter alternatives

- enlarge students' opportunities to do independent work.

Research and theory of learning, reinforcement, individual pacing, self-evaluation, and multisensory contact support the concepts used in developing these materials. This sub-system may lend further support to the hypothesis that a combination of instructional elements will facilitate learning.

Research on competencies needed by retail sales employees indicate that cash register operation is a sales supporting skill universally needed. The universal importance of this skill suggested the development of this sub-system of programmed instruction. The sub-system is divided into eight sections:

A. Introduction
B. Preparing the Cash Register
C. Cash Register Operation
D. Making Change
E. Accepting Checks
F. Protecting Your Store
G. Clearing the Cash Register
H. Criterion Test

Each section is designed to present one phase of cash register operation to the student. Use is made of linear programmed instruction style requiring frequent responses and participation by the student. In addition, use is made of the multisensory approach through programmed sections in the Audiscan sound-slide projector. Students are required to use the senses of hearing, sight, and touch in the learning process. This total involvement by the student should lead to more efficient and more effective learning. The sub-system is written for high school young men and women enrolled in a vocational education program at either the eleventh or twelfth grade level.

Figure 3, page 28, is a schematic description of the sub-system.

Sub-System Descriptions

Program Description. Before the student actually begins the sub-system, he must demonstrate that he possesses two prerequisite skills:

- He must be able to add, subtract, multiply, and divide fractions and decimals.

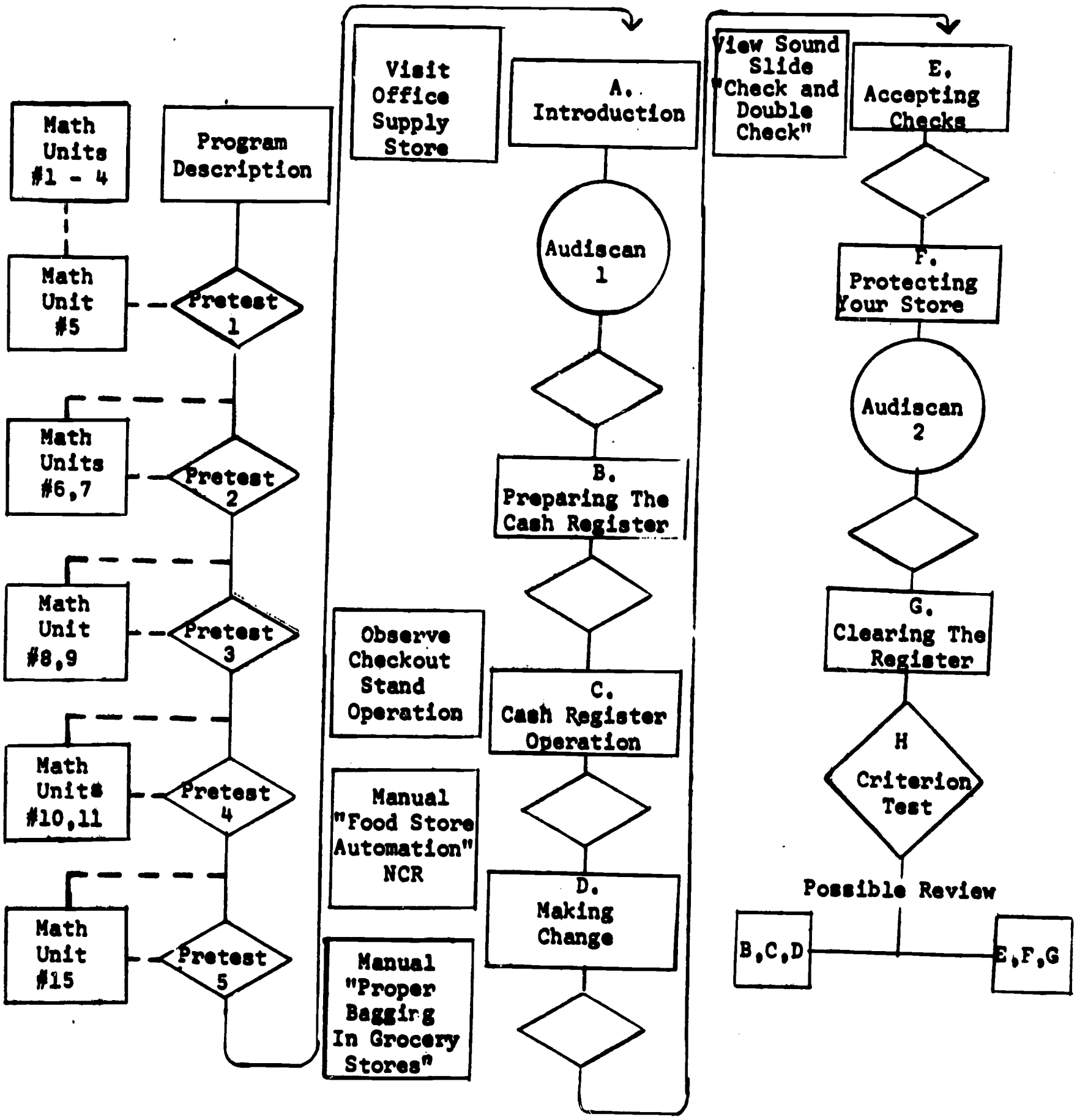
- He must be able to use percentages in figuring tax on merchandise purchased.

FIGURE 3

VI

CASH REGISTER OPERATION

RETAILING INSTRUCTIONAL SYSTEMS



Examples are provided for the student to demonstrate the mastery of these skills. Students experiencing difficulty are referred to OCCUPATIONAL MATHEMATICS INSTRUCTIONAL SYSTEMS, developed by this Vocational-Technical Education Project No. OE 7 - 0031 at Washington State University. After acquiring these necessary skills, the student is then directed to begin work in the sub-system.

VI - A. Introduction. This section introduces the student to the cash register, its parts, the role it plays in retail sales and other businesses requiring the uses of the cash register. The entire section, except for a brief introduction, is incorporated into an Audiscan sound-slide presentation. Instruction is presented in an audio-visual format. As a result of viewing the Audiscan, the student should be motivated to progress through the rest of the program.

VI - B. Preparing the Cash Register. One of the important tasks involved in cash register operation is preparation of the register. This section presents the procedure necessary to open a register for the day's business. After completion of this section, the student will be able to:

- open the cash register, using the proper key
- write the correct information on the back of the cash register receipt
- open the change bag without spilling any of the contents
- take the unsigned receipt out and set it aside temporarily
- remove the bills from the change fund bag
- count and, at the same time, arrange the bills of largest denomination while keeping all the bills in his hands
- record the number and value of the bills of largest denomination on the back of the receipt
- place the counted, arranged, and recorded bills in the proper till compartment
- repeat the counting, arranging, recording, and placing steps for the bills still left in his hands; continue until all bills are properly counted, arranged, recorded, and placed in the till.
- place the cardboard till cover in the proper position
- remove the coins, without spilling any of them, by carefully emptying the bag onto the cardboard till cover.

. select all the coins of largest denomination

. count all the coins of largest denomination

. record the number and value of these coins on the back of the cash register receipt

. place the coins in the proper till compartment

. count the next largest denomination of coins properly

. record the number and value of these coins on the back of the cash register receipt

. repeat the counting and recording objectives until no coins remain on the cardboard till cover

. remove the cardboard till cover

. close the cash register

. place the cardboard till cover in a safe, convenient place

. total the value column on the back of the cash register receipt

. verify his total, using the unsigned receipt he set aside earlier; and sign the receipt

. place the receipt in the change fund bag

. place the bag in a safe convenient place.

VI - C. Cash Register Operation. This section concerns itself with the actual operation of a cash register. Opportunity is given the student to perform the tasks involved with the operation of the machine itself. Although no actual cash register is used, the student will be able to perform the necessary tasks through simulated experience. After completion of this section, the student will be able to:

. name the basic parts of the NCR Model 52 cash register

. ring up sales on the cash register following the prescribed sequence

. fill out all register forms necessary to keep proper records of sales made

. follow proper procedure in handling money placed in the cash register.

VI - D. Making Change. Cash register operation requires the skill of accurate counting and handling of currency and coin. Experiences involving handling and counting money are provided for each student. Proper procedures involved in accepting money from the customer are vital to good business relations; therefore, they form an important part of the student's training. Upon finishing this section, the student will be able to:

. determine accurately the amount of the sale

. call out the amount of the sale

. call out the amount received from the customer

. place the money received from the customer on the slab

. ring a cash sale on the register

. count the change to himself

. put the money in the drawer and close it

. count the change to the customer

. enclose the receipt with the merchandise

. wrap the merchandise

. thank the customer.

VI - E. Accepting Checks. An important part of business is to provide services to the customer. One such service is cashing checks. The growing importance of the check in business transactions has made it necessary to include a special section on check handling. After proceeding through this section, the student will be able to:

. determine accurately the amount of the sale

. call out the amount of the sale

. go over the check

. identify the customer, using additional identification

. get approval of the check

. ring a cash sale on the register

. place the check in the register properly

. enclose the receipt with the merchandise

. wrap the merchandise

. graciously thank the customer.

VI - F. Protecting Your Store. This section is concerned with the responsibility of the employee to help prevent shoplifting in the store. Common practices of shoplifters are explored and explained. Proper procedure in handling cases of shoplifting is stressed. The section has added value in that it helps to develop the concept of loyalty and responsibility of the employee to his employer. After finishing this section, the student will be able to:

- state what shoplifting is
- list the characteristics by which a shoplifter may be identified
- act in the proper manner when someone is suspected of shoplifting
- list the methods by which merchandise is taken from a store
- list the four points of the Shoplifting Code.

VI - G. Clearing the Cash Register. At the end of a day's business, every employee who handles a cash register must make an accounting of his sales. A special procedure is associated with this process. This section explains the procedure and provides the student with the opportunity of actually counting and tabulating the day's receipts. At the end of this section, the student will be able to:

- fill in the information required in the heading of the daily report sheet
- open the cash register properly
- count all the coins of largest denomination
- record the number and value of these coins on the daily report sheet
- place the cardboard till cover in the proper position
- place all the coins of the next largest denomination on the cardboard cover
- count these coins properly
- record the number and value of these coins on the report sheet
- repeat the counting and recording steps until all coins have been processed
- check to see that the signed receipt is in the change bag
- remove the cardboard till cover
- place all the coins in the change bag
- remove all the bills of the largest denomination from the cash register.

VI - H. Criterion Test. As a result of completing the sub-system on CASH REGISTER OPERATION, the student must be able to demonstrate in the criterion test that he has learned the material he has studied. Actual performance tasks are outlined and set for the student. At any time that he experiences difficulty, he is advised to go back to the original section for review. This section acts as an evaluation of the sub-system and supports the evaluation contained in each of the preceding sections. Upon completion of the Criterion Test, the student is prepared to enter the retailing sales field and perform those tasks associated with cash register operation.

Supplementary Material

In order to enrich the sub-system on CASH REGISTER OPERATION, several supplementary activities have been provided for the student. This has been done in order to allow those students wishing to become more specialized in one phase of the retail sales to develop additional skills.

The National Cash Register Company, through its Educational Series, has provided a good means of enrichment. In this sub-system, the following manuals have been used:

. Proper Bagging In A Grocery Store

. Food Store Push Button Automation

. Cashing Checks

. Weighing Procedure

Proper Bagging In A Grocery Store explains the procedure which a clerk should follow in order to properly pack merchandise purchased. Important features include bagging techniques and customer courtesy.

Food Store Push-Button Automation provides the how and why information required of a cashier to effectively and efficiently process a customer through the check-out line. Additional National Cash Register Company materials included are manuals on Cashing Checks and Weighing of Produce.

Through the use of these supplementary materials, a student's experience may be broadened and strengthened, benefitting both the student and the potential employer.

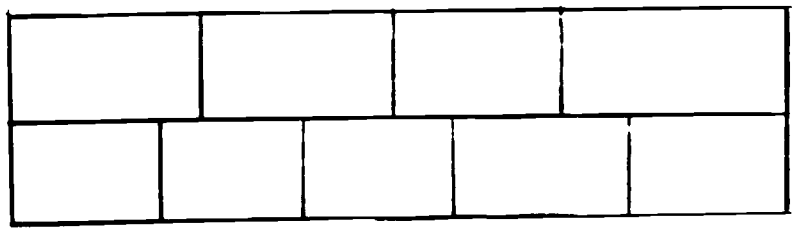
Special Equipment Needed

. Change bag

. Play coins totalling $50

. Play currency totalling $100

. One box, 12" x 9" subdivided into compartments as follows:



. Copies of sound-slide film Check and Double Check.

THE STOCKKEEPING TASK

This retailing sub-system explains the principles underlying the performance of the stockkeeping task, its importance to the successful operation of a retail business, and the procedures of merchandise arrangement.

It is primarily for secondary education students enrolled in a distributive education program, who are preparing for initial job competency in a general merchandise retailing occupation. It is designed to aid young adults in developing the competencies required for the successful completion of the stockkeeping task.

This sub-system may be used at the discretion of the instructor, depending on the individual needs of the students. It may be used as a unit of preparatory instruction for those students preparing for initial job entry in a distributive occupation or may be presented as a unit of supplementary instruction for those students already employed.

The general goals of this sub-system are to develop students with:

. the competencies required to perform the activities of the stockkeeping task

. an appreciation of the importance of the stockkeeping task

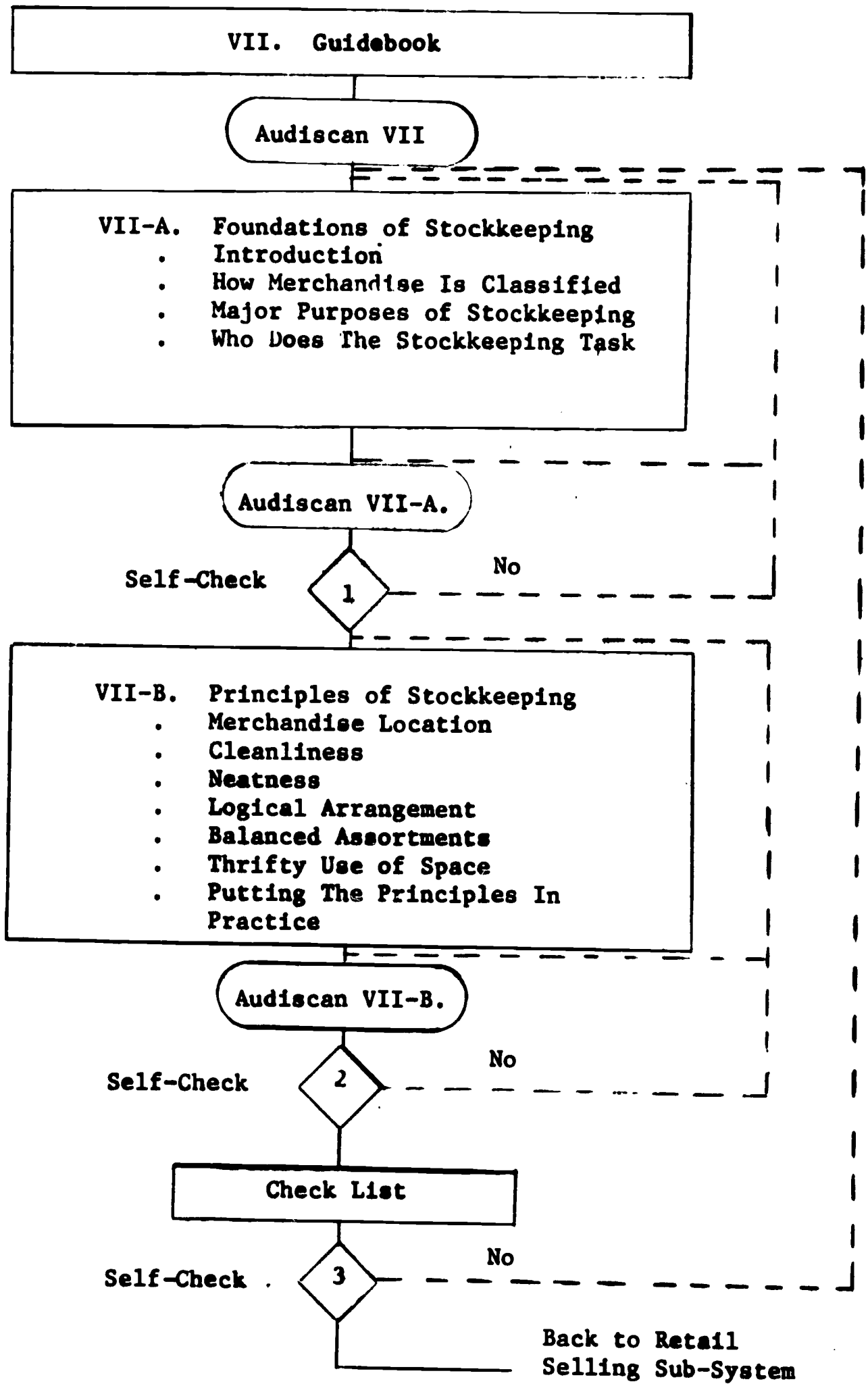
. an alertness for opportunities to protect and preserve the value of merchandise through the stockkeeping task

. an understanding of the relationship of the stockkeeping task to the functions of buying, selling, sales promotion, operations, and management.

Figure 4, page 35, is a schematic description of the sub-system, THE STOCKKEEPING TASK.

FIGURE 4

VII
THE STOCKKEEPING TASK
RETAILING INSTRUCTIONAL SYSTEM



Behavioral Objectives

The student will be able to:

- describe the primary objective of a retail business to show the relations of its customers, merchandise, profit, and growth
- discuss how stockkeeping affects the practice of having merchandise (a) in the right quantity, (b) at the right place, and (d) at the right time
- describe the relationship between the stockkeeping task and customer demand for merchandise, including (a) cleanliness, (b) neatness, (c) logical arrangement, (d) balanced assortments, (e) accurate identification, and (f) thrifty use of space
- describe the five major purposes of the stockkeeping task, including (a) to locate merchandise in a consistent manner, (b) to arrange merchandise attractively, (c) to replenish merchandise, (d) to protect the merchandise, and (e) to prepare the merchandise for counting
- describe the stock assortment of a business, including (a) item assortments and (b) group assortments
- describe the stockkeeping tasks performed by a (a) salesperson, (b) receiving clerk, and (c) stock counter
- discuss the statement, "What is the logical arrangement of merchandise?", including (a) type, (b) style, (c) color, (d) size, (e) price, (f) location, and (g) direction
- describe "balanced assortments" in terms of customer demand
- know aids to accurate identification, including (a) ticketing, (b) labeling, (c) table identification, (d) boxes, (e) racks, and (f) bins
- discuss the principle, "thrifty use of space," showing the relationship of reserve stock, counter stock, and under stock to each other
- differentiate types of merchandise in terms of basic stock, seasonal stock, and promotional stock
- identify and arrange counter stock, under stock, and reserve stock in a manner consistent with the principle of "logical arrangement"
- determine when replenishment of merchandise should take place

- replenish an assortment of counter stock from the under stock and reserve stock, using the principles of stock placement and arrangement

- arrange a group of selected merchandise in proper sequence according to one of the following: type, style, price, color, size

- identify old merchandise and describe ways it might be displayed prominently in order to sell it first.

Sub-System Components

There are three basic components that make up the stockkeeping sub-system: (1) programmed instruction, (2) programmed audio-visual presentations in the Audiscan sound-slide cartridges, and (3) the Self-Check evaluation.

Description of Programmed Instruction. The primary instructional vehicle is linear form programmed instruction. This form carries through both the written and audio-visual presentations. The sub-system has two booklets of written programmed content and two sound slide presentations in the Audiscan cartridges.

Evaluations. There are three self-check evaluations in the sub-system. Self-Check No. 1 follows the Audiscan Review of Sub-System VII - A. It is designed to measure whether or not the student has acquired the knowledge necessary to proceed to Sub-System VII - B. Self-Check No. 2 follows the Audiscan Review of Sub-System VII - B. It evaluates the student's comprehension of the information presented in this section. Self-Check No. 3 is a terminal evaluation. It measures whether or not the student has learned the behaviors required by the sub-system. It measures the student's ability to perform the stockkeeping task.

Instructions for Use of the Program. Instructions are included in the general statement within the guidebook in the first Audiscan cartridge, and in the written linear program VII - A.

Guidebook. The guidebook provides instructions to the student on procedures for working through the stockkeeping sub-system. Further, it includes supplementary materials, self-check evaluations, and suggested answers to the self-check evaluations.

VII - A. Foundations of Stockkeeping. This section includes (a) An Introduction to Stockkeeping, (b) How Merchandise is Classified, (c) The Major Purposes of Stockkeeping, and (d) Who Does The Stockkeeping Task.

VII - B. Principles of Stockkeeping. This section emphasizes (a) merchandise location, (b) cleanliness, (c) neatness, (d) logical arrangement, (e) balanced assortments, (f) thrifty use of space, and (g) putting the principles into practice.

Audiscan Presentations. Audiscan VII provides a programmed audio-visual introduction to the sub-system. In addition, it is used as a review for Sections VII - A and VII - B; and finally, it provides supplemental information to the written programmed instruction.

RETAIL RECORDKEEPING

This retailing sub-system is designed to teach the basic record-keeping competencies necessary for entry-level employment in the general merchandise retail field.

Each new employee in the retail field is immediately responsible to work with some records of the business. He either records control information directly into primary records or he transfers these primary records into other control forms. New employees record cash and credit sales, stock counts, receipts of new merchandise, customer-account information; and they record prices on tickets and labels.

Description of Sub-System

This sub-system is divided into six sections with accompanying student evaluations. Those sections are:

A. Introduction
B. Customer's Account
C. Sales Slip
D. Cash Sales
E. Merchandise Records
F. Price Marking

Linear-style programmed instruction is used to present basic concept and performance activities. Combined with prescribed sections of OCCUPATIONAL MATHEMATICS FOR INSTRUCTIONAL SYSTEMS and with suggested out-of-school activities, these programmed booklets should prepare the student for performance of the recordkeeping tasks usually required of beginning employees.

Figure 5, page 40, is a schematic description of the sub-system, RETAIL RECORDKEEPING.

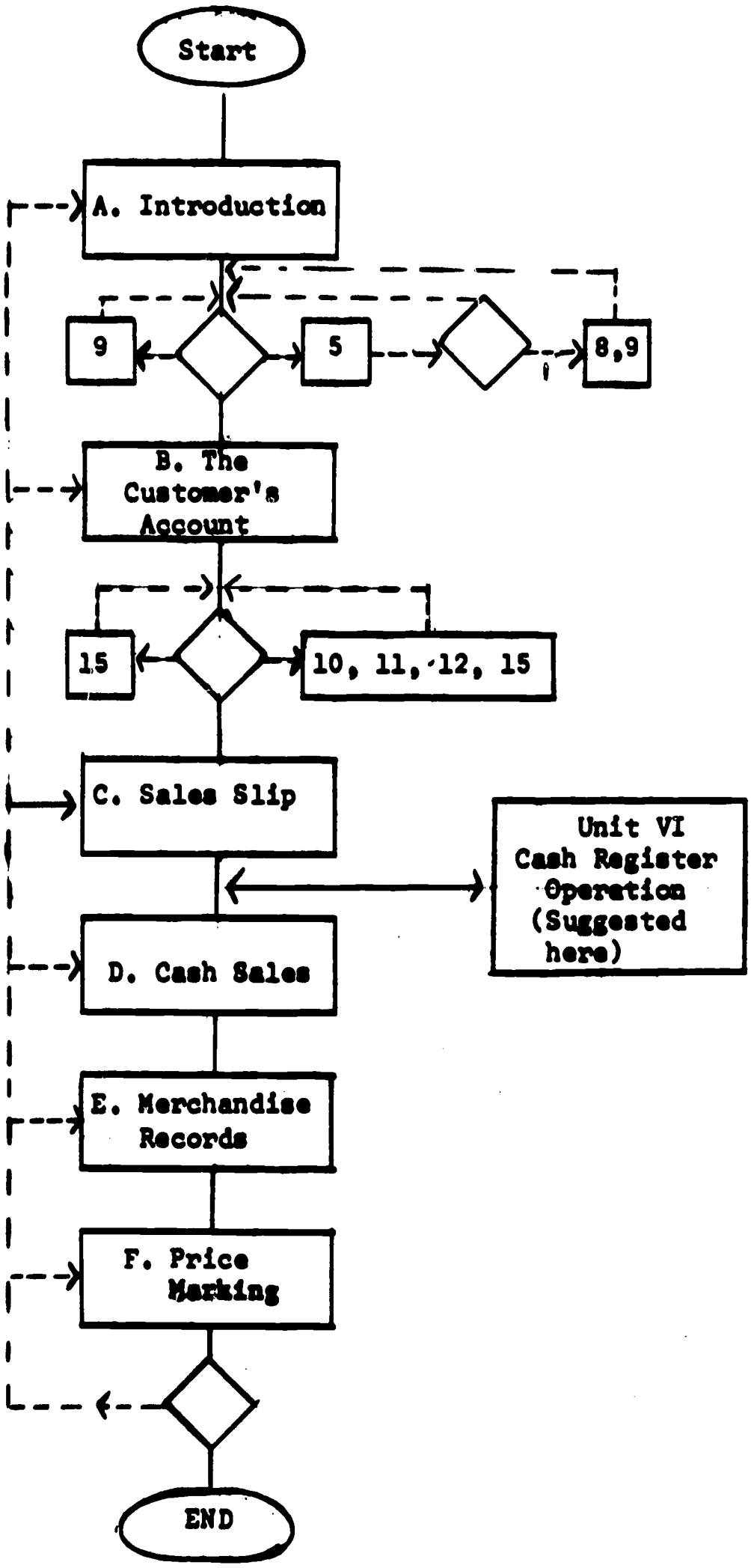
The material will be presented, as much as possible, without the teacher's influence in the learning process because the method of presentation will be to use programmed materials with which the student may work as an individual at his own self-paced rate. Materials will be chosen to fit a pattern of system of instruction which takes the student through a pre-determined sequence of activities toward specific objectives.

The sub-system is designed for use by young adults in either grades eleven or twelve, probably with less than average achievement

records, but not necessarily below average in intelligence or aptitude.

The competencies identified to be taught by these materials were selected for being common to entry-level work in retailing and some office occupations.

FIGURE 5



Auxiliary Instructional Materials:

Occupational Mathematics for Instructional Systems

UNIT

5	Add and subtract fractions
8	Concepts of decimals and fractions
9	Add and subtract decimals
10	Multiply decimals
11	Division of decimals
12	Converting fractions to decimals
15	Percentages

WORKING WITH PEOPLE

Working With People is an instructional sub-system designed to teach interpersonal relations competencies and the personal characteristics essential in working with other people in a retail sales job.

This instructional sub-system is designed for use on an individual basis by secondary school students who are in need of additional instruction in the area of interpersonal relations. It is written in the form of five booklets of linear programmed instruction with five accompanying Audiscan sound-slide presentations. It is designed to be used primarily by students in small high schools; however, the program is structured in such a way that it may be used by students in all educational environments.

This program is limited to study in the cognitive domain. While it is imperative that the student be able to apply the principles of interpersonal relations in his everyday dealings with people, no attempt will be made in this program to test for application. It will be assumed that knowledge of the elements of interpersonal relations is essential before the individual can apply these elements in making judgments in various human interactions.

It is further assumed that the individuals using this program will be

. high school students,

. enrolled in a distributive education program or its equivalent,

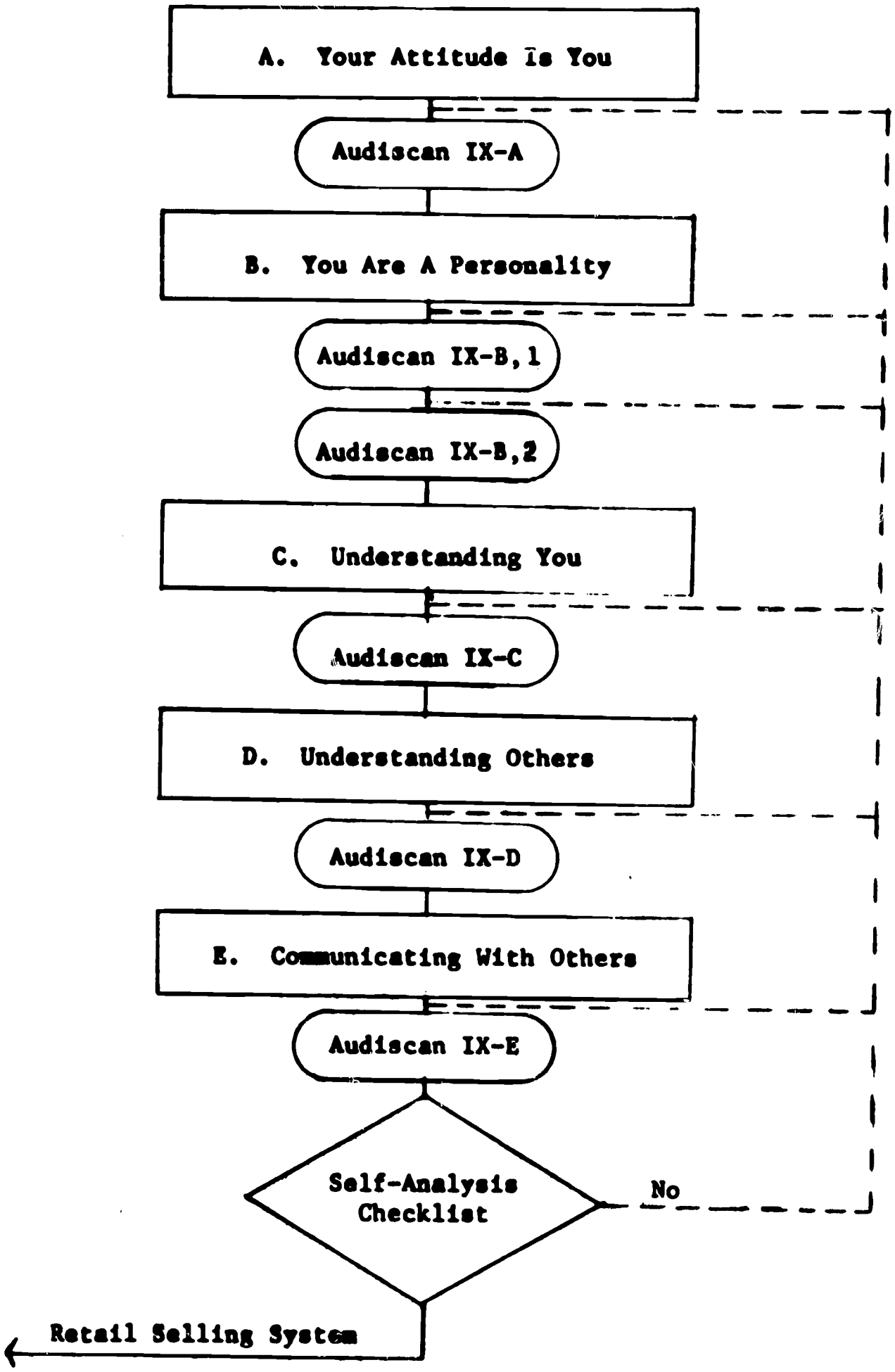
. interested in seeking careers in the field of salesmanship, and

. students who have had little association with people in a work situation.

Figure 6, page 42, is a schematic description of the sub-system, WORKING WITH PEOPLE.

FIGURE 6

IX
WORKING WITH PEOPLE
RETAILING INSTRUCTIONAL SYSTEM



Objectives

The student will be able to:

- identify in writing the importance of getting along with other people
- identify in a multiple choice question that 80 to 90% of those who lose jobs lose them because of inability to get along with others
- complete the statement that in learning to get along with others, proper attitude is essential
- complete the statement that attitude is a mental set
- recognize the importance of negative character traits
- recognize the importance of positive character traits
- identify in a multiple choice question that knowledge of self is necessary before we can understand others
- identify and list six of the eight basic primary needs of people
- select the eight basic needs of people from a listing of needs
- identify that needs influence attitude
- identify in a multiple choice question that attitude is determined by how we look at life
- write a statement describing the characteristics which make up personality
- answer the following statement true or false: No two people are the same; we all have individual differences.
- write a statement describing what personality is
- correctly respond to a true, false question that each individual is different
- select correct ways to deal with others from a list given him
- complete the statement, "Before we can learn to successfully deal with others we must first learn about ourselves."
- complete the statement, "If a person does not understand himself, he cannot hope to understand others."

- identify in a multiple choice question that personality can be changed
- gain an appreciation that people need to improve their personalities
- identify that needs influence personality
- identify the eight basic needs by seeing a picture illustrating each need
- identify the two major factors which make up personality
- identify the physical characteristics which make up and influence personality
- identify from a series of pictures the character traits which make up and influence personality
- categorize the positive and negative character traits
- answer the following statement true or false: Each person needs to improve his personality.
- use a checklist of personality traits each day
- identify the importance of communication in a multiple choice question
- identify in a multiple choice question the importance of emotional maturity
- identify the four areas of the Jo-Hari window and implement concepts about these areas into every day life
- identify in a multiple choice question that appreciation of self is necessary before we can understand and appreciate others
- identify that people are often not what they appear to be
- identify in a true, false statement that there are many areas about which we know very little
- identify in a completion question the three major groups of people with whom we must deal in retailing.

Sub-System Components

The basic vehicle for instructional content is 570 frames of linear style programmed instruction. This is produced in the form of five sections, each bound in a separate booklet. The linear program

mode is also used in programming a parallel form of the instructional content in five cartridges of sound-slide films incorporated in the Audiscan Model A cartridges.

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TITLE

100 DEVELOPMENT OF A RETAILING INSTRUCTIONAL SYSTEM FOR DISTRIBUTIVE EDUCATION

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RETRIEVAL TERMS

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601 Distributive Education
602 Retail Education
603 Retail Selling
604 Programmed Instruction
605 Cash Register Operation
606 Stockkeeping
The Selling Process
Retail Recordkeeping
Working With People

IDENTIFIERS

607 Vo-Tech. Ed. Research and Development Project No. OE7-0031

ABSTRACT

800 This distributive education instructional systems development
801 project was to create materials which could teach non-college-bound
802 youth the competencies necessary for entry level employment in the
803 general merchandise retail field.
804 Instructional systems concepts were utilized in preparing for
805 field testing nine sub-systems of instruction in retailing. The
806 sub-systems are: (1) Salesperson's Job, (2) Qualities of Salesperson,
807 (3) Customers' Buying Motives, (4) Selling Process, (5) Merchandise
808 Information, (6) Cash Register Operation, (7) Stockkeeping Task,
809 (8) Retail Recordkeeping, (9) Working With People.
810 Linear style programmed instruction in written form is used as
811 the primary instructional vehicle. A polysensory multi-media pro-
812 grammed instruction presentation was achieved by integrating concepts
813 in written, audio, and visual styles.
814 Prototype components of an instructional system have been
815 developed and are ready for field testing. Key elements included
816 which were developed by the project staff are 23 booklets of
817 programmed instruction and eight Audiscan sound slide films. These
818 materials are ready for field testing by the Northwest Regional
819 Education Laboratories during the fall semester 1968.
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